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EXAMINER

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NICOLE S. CARPENTER, JOSEPH R. DRENNAN,
ALISON K. EASTON, CASEY J. GRANT, ANDREW S. HOADLEY,
KENNETH F. MCAVEY, JR., JOEL M. SHARROW,
WILLIAM A. SYVERSON, and KENNETH H. YAO

Appeal 2008-4172
Application 10/798,816
Technology Center 1700

Decided: September 25, 2008

Before BRADLEY R. GARRIS, CHUNG K. PAK, and
PETER F. KRATZ, *Administrative Patent Judges*.

KRATZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 11, and 13-16. We have jurisdiction pursuant to 35 U.S.C. § 6.

Appellants' claimed invention is directed to apparatus for removing contaminant particles from a semiconductor substrate surface employing a support, a sacrificial coating applying means, an energy forming means to dislodge particulate matter, a curing means, a strippable film removal means, and, if necessary, fluidization means. Claim 11 is illustrative and reproduced below:

11. An apparatus for removing contaminate particulate matter from a contaminate particle containing integrated circuit semiconductor substrate surface comprising:

- a support for supporting an integrated circuit semiconductor substrate containing undesirable particulate matter on the surface of the substrate;
- means for applying a sacrificial coating of a curable polymer on the surface of the substrate, which curable polymer is to encapsulate and suspend the undesirable particles therein;
- means for fluidizing the curable polymer if necessary;
- energy forming means to dislodge at least some of the particulate matter from the surface of the integrated circuit semiconductor substrate into the fluid curable polymer sacrificial coating such that the particulate matter is partially or fully encapsulated and suspended within the sacrificial curable polymer coating forming a particulate matter containing curable polymer sacrificial coating;
- means for curing the fluidized particulate matter containing curable polymer sacrificial coating to form a cured polymer strippable film containing the particulate matter; and
- means for removing the particulate matter containing curable polymer sacrificial strippable film from the surface of the substrate as a strippable film providing a substrate surface having less particulate matter therein and a stripped film containing the particles.

The Examiner relies on the following prior art reference as evidence in rejecting the appealed claims:

Malotky	5,120,369	Jun. 9, 1992
Sayka	6,766,813 B1	Jul. 27, 2004

Claims 11 and 13-16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Sayka in view of Malotky.

We have considered the respective positions advanced by Appellants and the Examiner. On this record, the Examiner's rejection is not sustainable.

Sayka is directed to a cleaning a wafer held by and preferably beneath a vacuum chuck. The vacuum chuck includes an acoustic wave emitter for applying acoustic waves to the wafer for removing contaminant particles therefrom while the wafer is rotated while held by the vacuum chuck (col. 3, ll. 20-45). Also, a spray nozzle for applying cleaning fluid to the wafer is disclosed to assist in cleaning the wafer (col. 4, ll. 45-57).

The Examiner acknowledges that Sayka does not disclose means for applying a sacrificial coating of a polymer and “means for curing the fluidized particulate matter containing curable polymer sacrificial coating...” as required by independent claim 11 and the other appealed claims that depend therefrom (Ans. 4). The Examiner turns to Malotky for disclosing “apparatus for removing material from a surface by spraying a polymer in solution or suspension, which cross-links to a film, which is removable by stripping (Abstract, Col 1 lines 57-65, Col 2 lines 5-29 and Col 4 lines 13-14)” (Ans. 4).

Given the asserted disclosure of Malotky, it is the Examiner’s position that: “it would have been obvious for one of ordinary skill in the art at the time of the invention to have used strippable polymer material to encapsulate dislodged particles from the substrate of Sayka et al[.] in order to safely and

completely remove contaminate particulate matter from the substrate” (Ans. 4).

As correctly noted by Appellants; however, Malotky “discloses a method for immobilizing, decontaminating, and removing hazardous chemicals, including chemical warfare agents, from a substrate using a polymer film system” (Malotky, col. 2, ll. 5-29; Reply Br. 3).

In this regard, it is well settled that the burden of establishing a prima facie case of non-patentability resides with the Patent and Trademark Office (PTO). *See In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984).

Here, the Examiner has not discharged this burden by the proposed modification of the wafer cleaning apparatus of Sayka based on the disparate teachings of Malotky. Sayka is concerned with the defect density of silicon wafers and provides equipment for cleaning wafers made with “stringent contamination control protocols” (col. 1, ll. 5-54). In contrast, Malotky is directed to immobilizing and removing hazardous chemicals, such as chemical warfare agents, from the metal surfaces of contaminated equipment, including surfaces of ships, aircraft, and other equipment, for the rapid and safe turnaround of military equipment contaminated with such hazardous chemicals (col. 1, l. 5- col. 2, l. 68). The Examiner has not fairly explained why one of ordinary skill in the art would turn to Malotky for a proposed modification of the wafer cleaning apparatus of Sayka, much less explained precisely how such a modified apparatus would be compatible with the wafer cleaning vacuum chuck assembly of Sayka while corresponding to Appellants’ claimed apparatus.

It is also significant to note that the Examiner has not favored us with a detailed explanation as to the Examiner’s views on the scope of the

variously claimed “means plus function” elements of the claimed apparatus, particularly the contested apparatus elements and the correspondence of the structure allegedly suggested by the applied reference combination to such properly interpreted claim limitations (*see* 35 U.S.C. § 112, para. 6 and MPEP §§ 2181-2185).

In particular, the Examiner has not reasonably established that the proposed combination of Sayka and Malotky would have suggested structure that corresponds to the claimed apparatus including all of the required apparatus elements, such as: “means for applying a sacrificial coating...”, “means for curing...”, and “means for removing...” in addition to the “energy forming means...” and a support as called for in independent claim 11. In this regard, the above-noted “means” limitations as recited in claim 11 clearly invoke the sixth paragraph of 35 U.S.C. § 112. Hence, the limitations in question, when given their broadest reasonable construction as they would have been understood by one of ordinary skill in the art, each require structure corresponding to the structure described in Appellants’ Specification for each of these elements(to the extent such structure is described therein), or the equivalents thereof.

However, the Examiner has not fairly articulated how the proposed modified structure of Sayka reasonably corresponds to the structure required by the claimed apparatus, as properly interpreted in light of properly identified disclosed structure invoked via the sixth paragraph of 35 U.S.C. § 112 by the means plus function limitations recited in the rejected claims and/or the equivalents thereof.

It follows that we are constrained to reverse the Examiner’s obviousness rejection, on this record.

Appeal 2008-4172
Application 10/798,816

ORDER

The decision of the Examiner to reject claims 11 and 13-16 under 35 U.S.C. § 103(a) as being unpatentable over Sayka in view of Malotky is reversed.

REVERSED

tf/ljs

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